FOOD HABITS OF AMERICAN KESTRELS IN A LOW VOLE YEAR

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Since 1968, Frances Hamerstrom has observed 50 American Kestrel (*Falco sparverius*) nest boxes on a study area in central Wisconsin. Each year kestrels rear young in about one-fifth of the boxes. In 1971, 12 boxes produced 54 young, the greatest one-year production since the boxes were put up.

Summer censuses of voles (*Microtus*) have been made on the study area since 1959 (Hamerstrom, 1969). In 1971, following a record high the year before, populations of voles were at the lowest ever recorded. In 1,192 trap nights only one vole was caught (Hamerstrom and Hart, in prep.).

What are the food habits of the kestrel which permit a large production of young despite such a presumed dearth of food?

In August, 1971, after kestrels had fledged, I collected all the material from the inside of each of 8 boxes in which young were reared. I separated the bones and exoskeletons from the litter and calculated the proportion of the total volume of these skeletal remains on the basis of water displacement (Table 1). In the remains, 16 birds were counted. All were passerines. Of 23 mammals, 17 were microtines.

Heintzelman (1970), states that kestrels "feed largely upon insects and small rodents, such as the prolific Meadow Mouse [vole]." He compiled a graph of the per cent composition of the prey of kestrels from crop and stomach analyses given in May (1935). May's data were obtained from a variety of regions at different times of the year (Fig. 1).

In another analysis of kestrel food habits in Pennsylvania, Heintzelman (1964) found that of 271 individual prey items recovered from pellets and remains in nests, 54.3 per cent were of small mammals, 31.7 per cent were of insects, while birds comprised 13.6 per cent. One reptile was also noted.

In a similar tabulation of the total number of individual vertebrates found in prey remains or pellets in Wyoming nests, Craighead and Craighead (1956) recorded 80.9 per cent (178 of 220) small mammals and 19.1 per cent small birds. In Michigan, the Craigheads found that 76 per cent of the prey remains at nests were mammals and 24 per cent were birds. The Craigheads made no attempt to determine the insect component of the kestrel's diet.

I averaged the per cent composition of the 1971 kestrel prey in Wisconsin (Fig. 2). As I am dealing only with the skeletal remains from nest boxes, many insect parts must have been lost making it impossible to include all prey captured. My data are thus not wholly comparable to Heintzelman's and the Craigheads'. The larger proportion of birds than mammals is striking, nevertheless. Furthermore, this disproportion occurred in 6 of the 8 boxes.

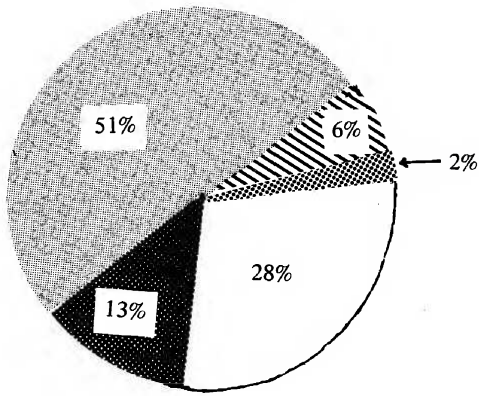

Fig. 1. Typical American Kestrel prey, Heintzelman (1970) from May (1935).

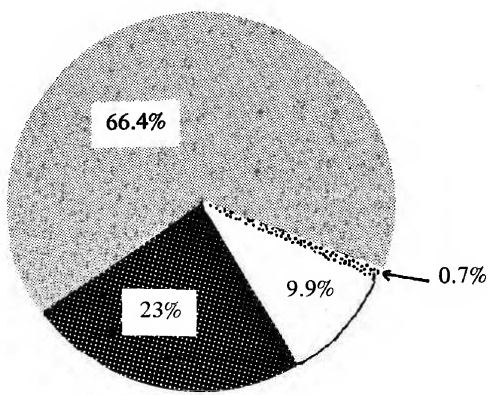

Fig. 2. American Kestrel prey, Wisconsin, 1971.

Key– Mammal Bird Insects Other Vertebrates Misc.

Table 1. Per cent composition by volume of 42.0 cc of skeletal parts of American Kestrel prey found in nest box litter in central Wisconsin, 1971.

Box	1	2	3	4	5	6	7	8
% Insects	46	96	67	98	70	49	40	67
% Birds	54	2	25	-	20	34	31	16.5
% Mammals	<1	<1	8	<1	10	16	28	16.5
% Reptiles and Amphibians	-	2	-	2	-	<1	<1	-
Total volume	1.3	4.6	4.8	9.8	5.0	6.8	8.5	1.2

It is clear that kestrel production was not depressed by the vole low of 1971, and it appears that the falcons compensated for a paucity of microtine prey by taking more birds and insects.

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